Volume measurement of bulk materials

VS

Volumetric Solutions

WE PROVIDE OUR PARTNERS WITH PROFESSIONAL SERVICE

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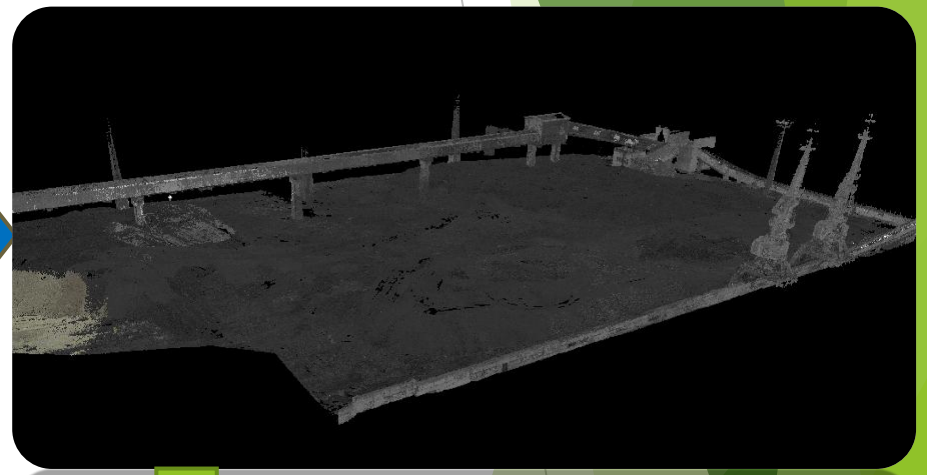
Principle of 3D laser scanning technology

The principle of the 3D laser scanning method is based on automatic scanning of the surface of a warehouse with bulk material by a laser scanner. The scanner is installed at several points so that all areas of the warehouse fall into the scanning area. At the same time, the surface of the warehouse is covered with millions of high-precision measurements, and then its 3D model is created using special software. At the final stage, the volumes of the material are calculated.

Stages of work performed

- 3D laser scanning of objects (shoulders, embankments, materials in warehouses)
- Cross-linking the resulting scans into a single point cloud
- Building 3D models of objects
- Calculation of the volumes of objects.



Comparison of traditional measurement methods with 3D laser scanning when measuring bulk material volumes

Accurate measurements of bulk material volumes are an integral part of the work of elevators, enterprises of the agro-industrial complex, ports, mining plants, mines, since raw materials or finished products of which are quite difficult to accurately account for.

A traditional tool for determining volumes of bulk materials in inventory Warehouses is an ordinary geodetic survey (usually using an electronic total station) allowing you to determine the volume of materials
with an error of 5-10%.

Main limitations:
low measurement speed;
physical impossibility of detail shooting large volumes of materials.

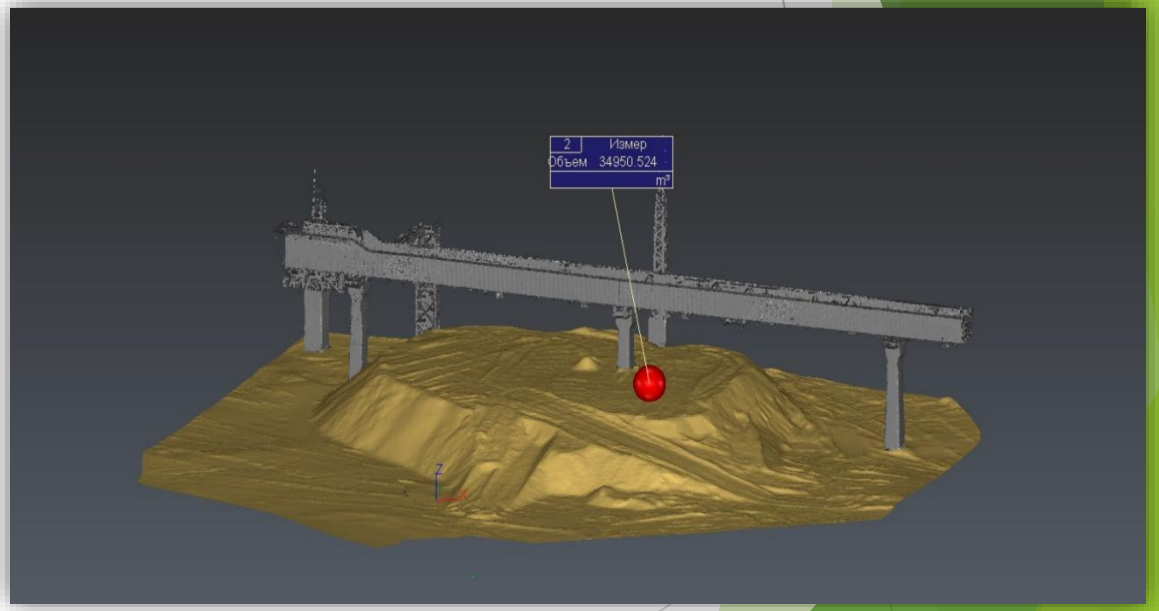
To determine the level of filling of silos mainly laser tape measures are used. Measurement error in determination storage volumes of materials in the silo is 15-20%.

Main limitations:
allow you to determine only average level of filling of the silo, but neither the shape of the mound, nor the exact accounting of dimensions and they do not provide the shape of the silo tower.

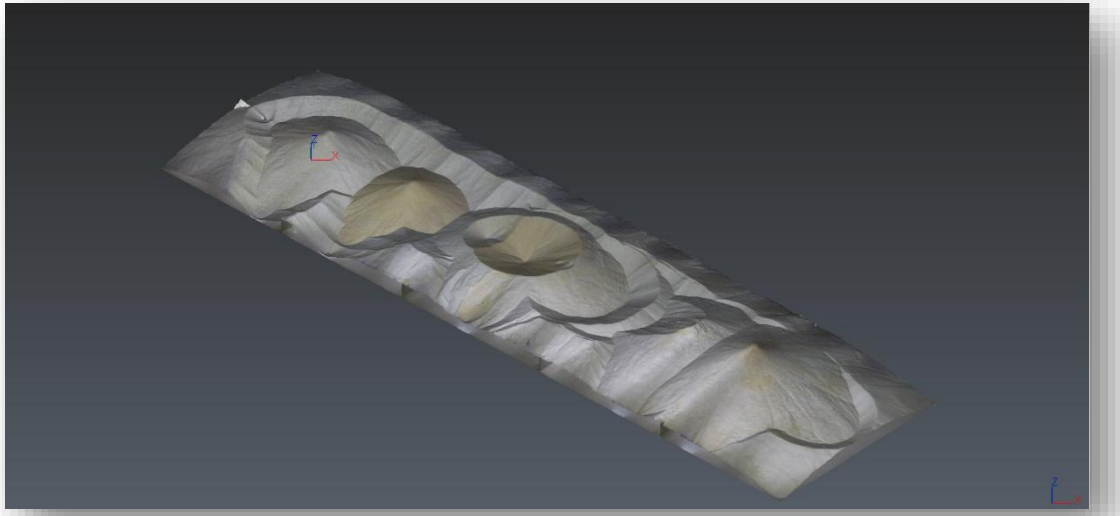
Unlike measuring the volume of storage of bulk materials by means of total stations or laser tape measures, 3D laser scanning technology allows you to measure in detail, with a step to units of millimeters, and reflect the shape of the shoulder or the surface of the stack of material in the warehouse. The results of 3D laser scanning make it possible to measure warehouses of bulk materials in a short time and calculate volumes with an error of up to 1%. When compared with the data of the previous measurement cycle, the moved and shipped volumes of products in warehouses are accurately calculated.

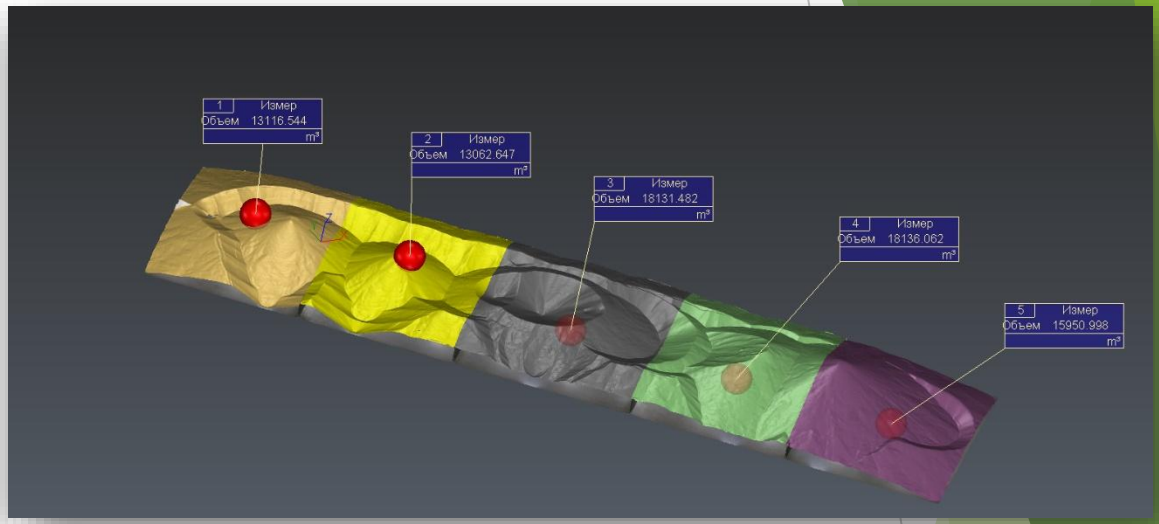
Calculating the volumes of objects with complex geometric shapes

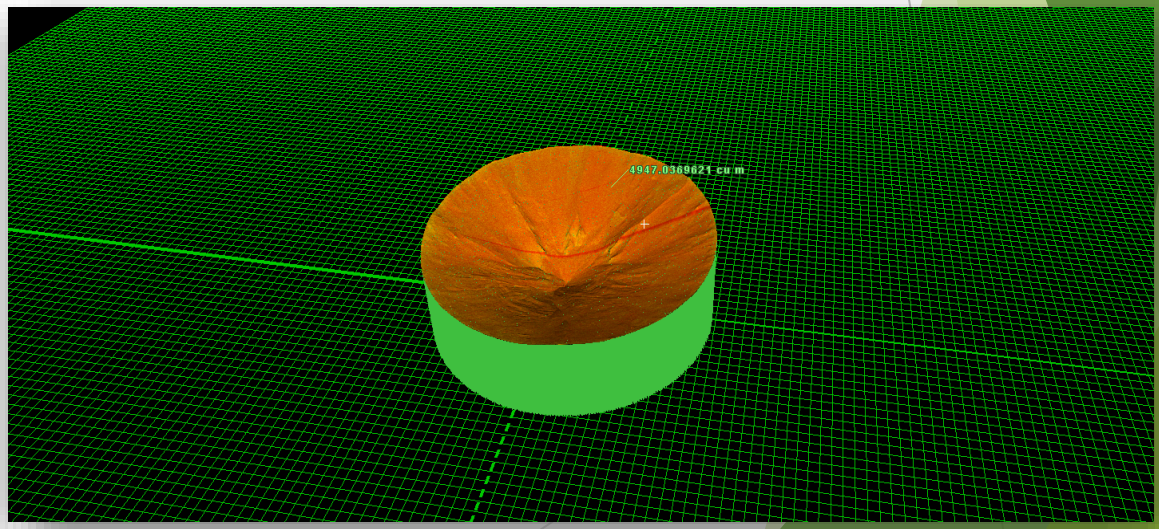
The completeness and detail of the information obtained as a result of 3D laser scanning exceeds all existing methods. The density of the points determined during the survey process can be calculated in fractions of a millimeter, which makes it possible to accurately display objects of the most complex geometric shape.



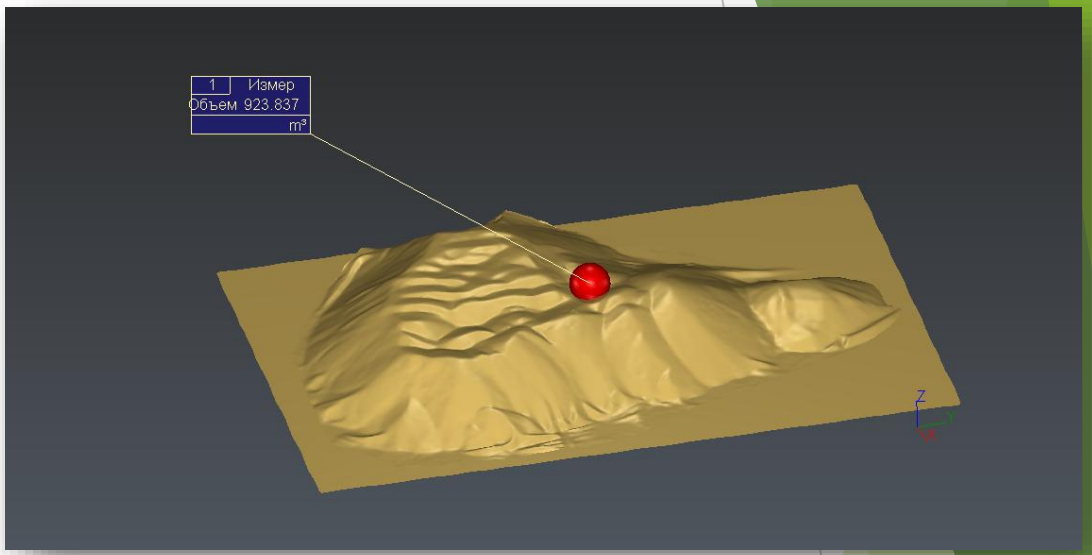
Calculating the volumes of objects with complex geometric shapes

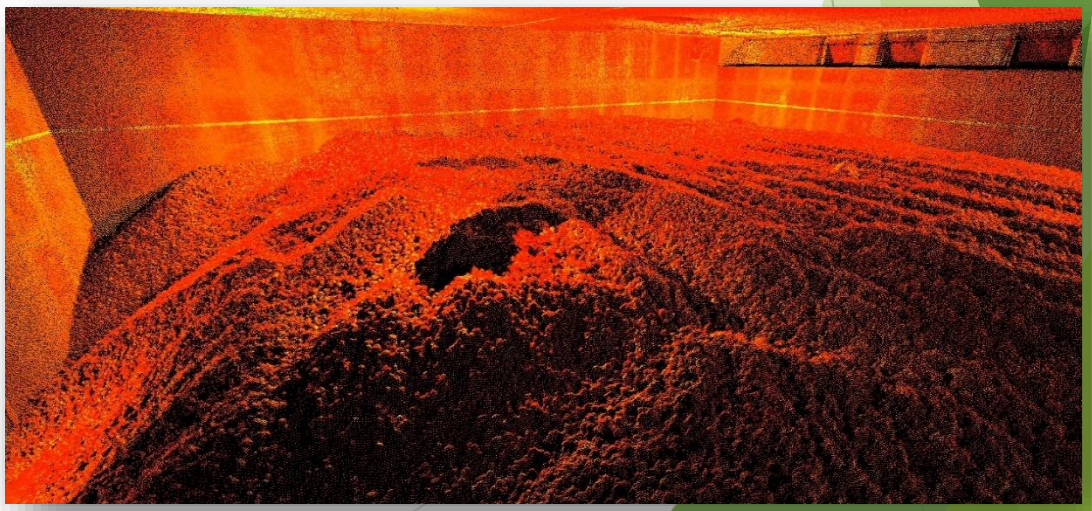






Calculating the volumes of objects with complex geometric shapes





The main advantages of the technology

- Contactless
- Accuracy
- Speed
- Completeness of information
- Visual three-dimensional representation
- Minimization of field work time

Additional benefits:

Get results quickly

Reduction of the overall cycle of work on the project

High level of detail and improved quality of the result

Safety of work during shooting

Non-destructive imaging technique

Advantages of working with the company VS

1. The completeness and detail of the information obtained as a result of 3D laser scanning exceeds all previously existing methods.
2. Laser scanning is characterized by unsurpassed speed of work, because measured information about the object is collected in a matter of minutes. That practically does not affect the operation of the elevator.
3. A detailed technical report on the results of measurement work and the calculation of bulk materials in floor storage warehouses and silos includes: 3D models of all grain piles, the results of calculating grain volumes in each silo and warehouse.